

### Abstract

There is provided a flay-back type synchronous rectifying switching power supply device in which a rectifying element is surely turned off before the main switch is turned on even when the on-time of a main switch element is lengthened due to sudden variation of a load. The synchronous rectifying switching power supply device is equipped with a synchronous rectifying element (Q2) connected to a secondary winding (N2) of a transformer (T) in series and driving means comprising an auxiliary winding (N3), etc. for turning on the synchronous rectifying element (Q2) complementarily with a main switch element (Q1) between output terminals (13, 14). A transistor (Tr1) serving as interrupting means for turning off the synchronous rectifying element (Q2) is provided between the gate and source of the synchronous rectifying element (Q2). An off-timing at which the synchronous rectifying element (Q2) is turned off by the interrupting means (Tr1) is set within a timing range which corresponds to a fixed time after the main switch element (Q1) is turned on and also is as near as a fixed driving period of the main switch element (Q1).